

EXHIBIT 10

Forthcoming in *The Reform of EC Competition Law*,
Ioannis Kokkoris and Ioannis Lianos (eds.), Kluwer (2008)

Antitrust Issues In Network Industries

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May 2008

Abstract

I analyze how antitrust law and sectoral regulatory rules should be applied to network industries. I first identify a number of relevant features of network industries that may affect the way in which antitrust law and regulatory rules should be applied. These relevant features include (among others) network effects, market structure, market share and profits inequality, choice of technical standards, relationship between the number of active firms and social benefits, existence of market power, leveraging of market power in complementary markets, and innovation races. I find that there are often significant differences on the effects of application of antitrust law in network and non-network industries.

Key words: networks, network effects, public policy, antitrust, telecommunications, technical standards, lock-in, net neutrality, Internet, Microsoft

JEL Classification: L4, L5

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Antitrust Issues In Network Industries

1. Introduction

Network industries form a large, significant, and frequently fast-growing part of the world economy. For example, a significant network industry is telecommunications, providing voice and data services, including the Internet and the world wide web. Other significant network industries are computer software and hardware. These two sectors, telecommunications and computers, have been the engines of fast growth of the world economy. In the news and entertainment sector, network industries include broadcasting and cable television, which in recent years are reaching into traditional telecommunications services. In transportation, networks include airlines, railroads, roads, and shipping, and the delivery services that “live” on these, such as the postal service and its competitors. In the financial sector, networks include traditional financial exchanges for bonds, equities, and derivatives, clearing houses, B2B and B2C exchanges, credit and debit card networks, as well as automated transactions banking networks, such as ATM networks.

Besides traditional network industries, many of the features of networks apply to *virtual networks*. A virtual network is a collection of compatible goods that share a common technical platform. For example, all VHS video players make up a virtual network. Similarly, all computers running Windows can be thought of as a virtual network. Compatible computer software and hardware make up a network, and so do computer operating systems and compatible applications. More generally, networks are composed of complementary components, so they also encompass wholesale and retail networks, as well as information networks and servers such as telephone yellow pages, Yahoo, Google, MSN, etc.

Adding to the importance of networks from a public policy point of view is the fact that network industries often provide necessities. Monopolization in such a setting can have significant social and political implications.

There may be a number of anti-competitive concerns in a network industry. In this chapter, we focus on the following questions: Since network industries have special common features, are there special competition policy issues arising out of key features of network industries? If yes, what is the framework of the public policies that can be pursued to address these issues? Should we apply the same rules as in non-network industries?

2. The Logic of Competition Law in the United States and the European Union

The logic of competition and antitrust law in the United States and the European Union is to guard against restrictions and impediments to competition that are not likely to be naturally corrected by competitive forces. For this article, I will posit that the maximization of efficiency (allocative, productive, and dynamic) is the desired outcome of competition and antitrust law, and that typically competition is the means of achieving efficiency.¹

As an alternative to antitrust and competition law, economic regulation has been established in three exceptional case: (i) for those markets where it is clear that competition cannot be achieved by market forces; (ii) where deviation from efficiency is deemed socially

¹ Many commentators believe that maximization of total surplus (that is, consumers’ surplus plus industry profits) is an acceptable standard for US antitrust enforcement while maximization of consumers’ surplus has special significance for the European Union.

strong network effects are present, a very large market share of one platform creates significant network benefits for this platform, which contribute to large consumers' and producers' surpluses. It is possible to have situations where a breakup of a monopoly into two competing firms of incompatible standards *reduces* rather than increases social surplus because network externalities benefits are reduced. This is because *de facto* standardization is valuable, even if done by a monopolist.

In the Economides-Flyer model, although consumers' surplus is increasing in the number of active firms, total surplus is decreasing in the number of firms. That is, the more firms in the market, the lower is total welfare. This remarkable result comes from the fact that when there are fewer firms in the market there is more coordination and the network effects are larger. As the number of firms decreases, the positive network effects increase more than the dead weight loss, so that total surplus is maximized in a monopoly! Total surplus is highest while consumers' surplus is lowest in a monopoly. This poses an interesting dilemma for antitrust authorities. Should they intervene or not? In non-network industries, typically both consumers' and total surplus are lowest in a monopoly. In this network model, maximizing consumer's surplus would imply minimizing total surplus.

Compared to the market equilibrium under compatibility, the incompatibility equilibrium is deficient along many dimensions. Consumers' and total surplus are higher under compatibility; the profits of all except the highest production firm are higher under incompatibility; and prices are lower under compatibility except possibly in a duopoly.

In Networks, Market Inequality Can Exist Without Anti-Competitive Acts

Because inequality is natural in the market structure of network industries, there should be no presumption that anti-competitive actions are responsible for the creation of market share inequality or very high profitability of a top firm. Thus, no anti-competitive acts are *necessary* to create this inequality. The "but for" benchmark against which anti-competitive actions in network industries are to be judged should not be "perfect competition" but an environment of significant inequality and profits.

In Network Industries, Free Entry Does Not Lead to Perfect Competition

The existence of network effects implies that, in network industries, free entry does not lead to perfect competition. In a market with strong network effects, once few firms are in operation, the addition of new competitors, even under conditions of free entry, does not change the market structure in any significant way. Although eliminating barriers to entry can encourage competition, the resulting competition may not significantly affect market structure. This implies that, in markets with strong network effects, antitrust authorities may not be able to significantly affect market *structure* by eliminating barriers to entry. See the earlier example where the addition of the fifth firm hardly changes the output, prices and profits of the first four firms.

The remarkable property of the incompatibility equilibrium is the extreme inequality in market shares and profits that is sustained under conditions of free entry. Antitrust and competition law have placed a tremendous amount of hope on the ability of free entry to spur competition, reduce prices, and ultimately eliminate profits. In network industries, free entry brings into the industry an infinity of firms, but it fails miserably to reduce inequality in market shares, prices and profits. Entry does not eliminate the profits of the high production firms. And, it is worth noting that, at the equilibrium of this market, there is no anti-competitive behavior. Firms do not reach their high output and market domination by exclusion, coercion, tying, erecting barriers to entry, or any other anti-competitive behavior. The extreme inequality is a natural feature of the market equilibrium.

At the long run equilibrium of this model with free entry, an infinity of firms have entered but the equilibrium is far from competitive. No anti-competitive activity has led firms to this equilibrium. Traditional antitrust intervention cannot accomplish much because the conditions that such intervention seeks to establish already exist in this market.

Can there be an improvement over the market incompatibility equilibrium? Yes, a switch to the compatibility equilibrium which has higher consumers' and total surpluses for any number of firms. Is it within the scope of competition law to impose such a change? It depends. Firms may have a legally protected intellectual property right that arises from their creation of the design of the platform. Only if anti-competitive behavior was involved, can the antitrust authorities clearly intervene.

Imposing an Egalitarian Market Structure is Likely to Be Counterproductive

An implication of the above analysis of network effects is that antitrust interventions may be futile. Because "winner takes most" is the natural equilibrium in these markets, attempting to superimpose a different market structure (say, one in which all firms have approximately equal market shares) may be both futile and counterproductive.

Nature of Competition is Different in Network Industries

Strong network effects imply that competition *for the market* takes precedence over competition *in the market*. The fact that the natural equilibrium market structure in network industries is winner-take-most with very significant market inequality does not imply that competition is weak. Competition on which firm will create the predominant (top) platform and reap most of the benefits is, in fact, often intense. In network industries, there is typically an intense race to be the dominant firm. In network industries, we often observe Schumpeterian races for market dominance.

A good recent example of Schumpeterian competition is the competition among dot-coms in 1998-2000. As explained earlier, economic models imply a high valuation of the dominant firm compared to other firms in the same network industry. The same perception prevailed on Wall Street. During that period, dot-com firms advertised very intensely and subsidized consumers so as to be able to achieve the coveted dominant position in the market. The easy availability of capital for dot-coms at the time facilitated this behavior as firms "burned" almost all the cash they had in their attempts to get the top market share. Many of the dot-coms failed because demand for their services was much lower than predicted or because of flaws in their business models. However, all the successful dot-coms, such as eBay, Amazon, Yahoo, and later Google, also followed this strategy. Generally, in network industries, the costs of entry may be higher, but the rewards of success may also be higher compared to non-network industries.

Path Dependence

The presence of network effects gives special importance to *path-dependence*. Path-dependence is the dependence of a system or network on past decisions of producers and consumers. For example, the price at which a VHS player can be sold today is path dependent because it depends on the number of VHS players sold earlier (the installed base of VHS players). The existence of an installed base of consumers favors an incumbent. However, competitors with significant product advantages or a better pricing strategy can overcome the advantage of an installed base.